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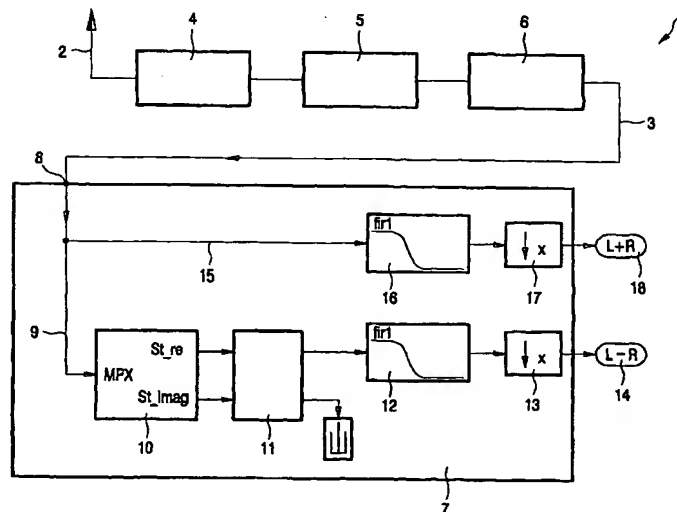
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[Continued on next page]

(54) Title: RECEIVER



(57) Abstract: The invention refers to a method for a receiver (1) having a signal path (3) incorporating a tuner (4), a frequency demodulator circuit (5) for supplying an analog stereo multiplex signal comprising a baseband stereo sum signal, a 19 kHz stereo pilot and a stereo difference signal, which is double sideband amplitude-modulated on a suppressed 38 kHz subcarrier, a sampler (6) for converting the analog stereo multiplex signal into a time discrete digital stereo multiplex signal and a stereo decoder (7) for decoding the time discrete digital stereo multiplex signal into a time-discrete digital stereo sum and a time discrete digital stereo difference signal. According to the invention the analog stereo multiplex signal is converted into a time discrete digital stereo multiplex signal and then the time discrete digital stereo multiplex signal is shifted over a frequency of 19 kHz to extract the pilot tone.



FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 512 606 A (PHILIPS NV) 11 November 1992 (1992-11-11) cited in the application	1
A	the whole document	2-10
A	US 4 630 299 A (NOUJAIM SHARBEL E ET AL) 16 December 1986 (1986-12-16) column 3, line 6 - column 7, line 6	1-10
A	US 5 327 132 A (PORAMBO SYLVESTER P ET AL) 5 July 1994 (1994-07-05) column 2, line 26 - column 3, line 53	1-10
A	EP 1 071 203 A (SONY INT EUROP GMBH) 24 January 2001 (2001-01-24) abstract	1-4
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 604 808 A (SHIMADA YOSHIKAZU ET AL) 18 February 1997 (1997-02-18) column 3, line 13 - column 10, line 8 -----	1,5

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0512606	A	11-11-1992	DE 69212214 D1	22-08-1996
			DE 69212214 T2	30-01-1997
			EP 0512606 A2	11-11-1992
			ES 2090482 T3	16-10-1996
			JP 3276392 B2	22-04-2002
			JP 6029938 A	04-02-1994
			KR 242394 B1	01-02-2000
			SG 44895 A1	19-12-1997
			US 5257312 A	26-10-1993
US 4630299	A	16-12-1986	CN 86100932 A ,B	20-08-1986
			JP 1876837 C	07-10-1994
			JP 6001919 B	05-01-1994
			JP 61210734 A	18-09-1986
			KR 9409782 B1	17-10-1994
US 5327132	A	05-07-1994	NONE	
EP 1071203	A	24-01-2001	EP 1071203 A1	24-01-2001
			JP 2001086083 A	30-03-2001
US 5604808	A	18-02-1997	JP 3281466 B2	13-05-2002
			JP 7135425 A	23-05-1995